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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,275	09/23/2003	E. Seth Harbuck	PCRC 8472U1	6566

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Polster, Lieder, Woodruff & Lucchesi, L.C.
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St. Louis, MO 63131-3615

EXAMINER

BERTHEAUD, PETER JOHN

ART UNIT	PAPER NUMBER
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3746

MAIL DATE	DELIVERY MODE
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06/17/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	10/669,275		HARBUCK, E. SETH	
	Examiner		Art Unit	
	PETER J. BERTHEAUD		3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5 and 10-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5 and 10-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 January 2010 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

1. This Office action is in response to amendments filed 1/25/2010. It should be noted that claims 5, 10, 11, and 13 have been amended, and claims 1-4, 6-9, and 25-30 have been cancelled.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first housing end cap comprising a pipe thread located on the axial centerline of the first housing end cap (claim 11) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

3. The drawings are objected to under 37 CFR 1.83(a) because they fail to show reset spring 10 biasing the piston 8 against the machine ball 17 and the piston end cap 7; the biased piston 8 pressing against the machine ball 17 to seal the machine ball 17 against the piston end cap 7, as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure

is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 5 and 10-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claimed fuel pump is not enabled for the following reasons:

The piston end cap and piston assembly, as shown the drawings submitted 1/25/2010, will not allow any fluid to be pumped in the way described in the specification. On page 8 of the specification, it stated that "when the coil assembly 21 of

the fuel pump A is not energized, the reset spring 10 biases the piston 8 against the machine ball 17 and the piston end cap 7. The biased piston 8 presses against the machine ball 17 to seal the machine ball 17 against the piston end cap 7.” It can clearly be seen in the figures that piston 8 is connected to piston end cap 7, allowing the machine ball 17 to float freely between the end of piston 8 and the end cap 7. Meaning, the piston 8 cannot be biased against the machine ball to seal the machine ball 17 against the piston end cap 7 because the piston and end cap are coupled as one unit. It would seem that the machine ball 17 can only seal against the end of the piston 8, and that is only when the piston 8 is moving from right to left, as shown by the figures.

As also described on page 8 of the originally filed specification, fluid would seem to enter the pump at element 45 and exit at element 25, meaning the piston 8 would have to move fluid from left to right (when looking at Figure 1). However, as seen in the enlarged portion of Figure 1, the machine ball 17 is already against the piston end cap 7 before rightward movement of the piston 8 has even begun. This leaves a gap between the ball and piston 8 and therefore allows fluid to escape back to the left side of the piston 8 upon rightward movement. In addition, when the piston reaches its furthestmost right position and begins to move back left, the machine ball 17 will fill the gap in the piston bore and not allow any fluid to move to the right side of the piston. In turn, this will not allow any fluid to be pumped to the check valve 22 (as stated in the last full paragraph on page 8 of the specification). Basically, this pump seems to work opposite to the way described in the specification. The examiner is confused by the

discrepancies between the specification and the drawings and therefore maintains that the claim language is not enabled.

6. In claim 11 it is stated that the first housing end cap comprises a pipe thread located on the axial centerline; in claim 12 it is stated that the first housing end cap further comprises a threaded portion to allow for mounting of the fuel pump. Claim 12 depends from claim 11, but there is only one threaded portion on the first housing end cap shown in the drawings submitted 1/25/2010, so at the very least one of these limitations is not enabled. Furthermore, there doesn't seem to be *any* pipe threads located on an axial centerline of the first housing end cap shown in the drawings. Because this limitation is present in claim 11 both of these claims are not enabled.

7. Claims 11-24 are also rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In the amendment filed 1/25/2010, Applicant has removed the portion of the specification describing the limitations of claims 11 and 12. Since these limitations are not shown in the drawings or described in the specification they are no longer supported.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 11-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention. Claims 11- 12 are rendered indefinite because it is unclear how many threaded portions are being claimed. In claim 11 it is stated that the first housing end cap comprises a pipe thread located on the axial centerline; in claim 12 it is stated that the first housing end cap further comprises a threaded portion to allow for mounting of the fuel pump. Is this "threaded portion" in claim 12 the same element as the "pipe thread" in claim 11? There is only one threaded portion on the first end cap shown in the drawings, so it is assumed that these different terms are describing the same element. Consistency of terms in the claim language is requested for the purposes of clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas 5,073,095 in view of Skillman 6,368,084, and in further view of Whitted 1,908,092

Regarding claim 5, Thomas discloses a pump assembly comprising: an enclosure; a piston assembly 28; and a coil assembly capable of operating the piston assembly at a frequency to generate a fluid pressure when the coil assembly is operated by a microprocessor 52 sending a series of electrical impulses to the coil

assembly (see col. 3, lines 20-58); wherein the enclosure comprises a housing (12a, 12b), a first housing end cap 10, and a second housing end cap 14; and wherein the piston assembly 28 comprises a check valve 32 on its output end; a reset spring 30 and a check valve 34; and wherein the first housing end cap 10 is generally cylindrical shaped and includes an annular offset (see portion where 10 contacts 12a) to allow for connection to the housing (12a, 12b), the annular offset acting as a shoulder to locate the housing onto the first housing end cap (see how the shoulder of 10 contacts 12a). However, Thomas does not teach the following piston and filter limitations taught by Skillman and Whitted.

Skillman (Fig. 3) teaches a piston assembly comprising: a piston 30, a piston end cap 63, and a machine ball 62 acting together an inertial check valve. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have modified the pump assembly of Thomas by implementing a valved piston having an end cap and a machine ball, as taught by Skillman, because a check ball valve is an obvious variant of the check valve shown in Thomas.

Whitted teaches fuel pump assembly comprising: a filter cap 154, a filter spring 156, a filter 160, and an O ring 168, the filter having a filter end plate 158 whereby the filter is held in place by captivating the filter spring 156 between an interior of the filter cap 154 and the surface of the filter end plate 158. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have modified the pump assembly of Thomas in view of Skillman by implementing a filter end plate, cap,

and spring, as taught by Whitted, in order to filter the fuel being pumped and to maintain the filter's position even when there is a strong fluid flow.

In addition, Thomas in view of Skillman and Whitted discloses the general conditions of the claimed invention except for the coil assembly operating the piston assembly at a frequency of between about 30 Hz and about 50 Hz to generate a fuel pressure of between about 5 psig and about 15 psig at a minimum flow rate of about 20 pounds of fuel per hour. It would have been obvious to one having ordinary skill in the art at the time the invention was made to operate the coil assembly within these parameters, since the claimed values are merely an optimum or workable range. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (*In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) see MPEP 2144.05 II - Optimization of Ranges).

Re claim 10, Thomas, as modified, teaches that the first housing end cap (10 in Thomas) further comprises a bore and a counter bore (see 16 in Thomas) to provide a channel for fuel flow through the fuel pump and wherein the counter bore acts to help locate and install the piston end cap and the machine ball.

Response to Arguments

12. Applicant's arguments filed 1/25/2010 have been fully considered but they are not persuasive.

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13. Applicant fails to argue or explain why or how claim 5 is properly enabled. Simply cancelling claim 8 does not help to clear up the differences between what is shown in the drawings and what is described in the specification. Examiner maintains that it is unclear from the figures and the specification how the fuel pump of the present invention pumps fluid; thus claims 5 and 10-24 are not enabled (see the above rejection for a more detailed explanation).

14. The Examiner has issued an art rejection under new grounds for claims 5 and 10. This rejection is indeed proper due to claims 6, 7, and 9 being incorporated into independent claim 5. Previously, claim 9 was dependent on claim 8 which has now been canceled; thereby the scope of amended claim 5 has been altered allowing for a new grounds of rejection.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER J. BERTHEAUD whose telephone number is (571)272-3476. The examiner can normally be reached on M-F 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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